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09/740,531	12/18/2000	George P. Copeland	AUS9000502US1	8383

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EXAMINER

KIANERSI, MITRA

ART UNIT PAPER NUMBER

2145

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/740,531

Applicant(s)

COPELAND ET AL.

Examiner

mitra kianersi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 04/27/01, 12/30/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### ***Response to Arguments***

Applicant's arguments filed on July/09/2004 have been fully considered but they are not persuasive.

Applicant on page 7, line 14, argues that Barbara teaches away from a client sending a request a numeric-valued generation ID (GID) to a server. It is very well known that an ID is "Identifying information" which could come in a form of a numeric-value. Barbara et al. In COL 2, LINES 60-65 discloses that the server processor periodically broadcasts invalidation reports to the client processor. Each respective invalidation report includes information identifying which, if any, of the plurality of data values have been updated within a predetermined period of time before the server processor broadcasts the respective invalidation report. Also, on col 2, lines 66-67 and col 3, lines 1-5 disclose that the client processor determines, based on the invalidation reports, whether a selected data value in the cache memory of the client processor has been updated in the server processor since the selected data value was stored in the cache memory. The client processor invalidates the selected data value in the cache memory of the client processor, if the selected data value has been updated in the server processor.

Applicant on page 8, line 5, argues that Barbara does not teach or suggest incrementing the GID by the server and returning it to the client. Barbara et al. at on col 10, lines 63-67 and col 11, lines 1-10 discloses that at step 286, a combined signature in the report is different from the corresponding combined signature in the cache 22, then one or more of the data covered by that combined signature have been updated in the server 10a. In order to detect which of the data in cache are actually invalid, several respectively different combined signatures (representing respectively different subsets of the data in the server) are included in the report. Each page in the cache may be included in several different subsets of the pages in the server, and each page is thus covered by several combined signatures. Steps 288 and 290 are repeated for each datum in each page represented by the non-matching combined signature. At step 290, a counter for each datum represented by the combined signature is incremented.

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Applicant on page 8, lines 14-15 argues that Barbara does not teach or suggest a server that compares the GID received from the client against a GID that was previously recorded in the server to detect if an affinity break has occurred.

Barbara on col 10, lines 1-7, discloses that "Broadcasting Signatures" involves a comparison between the a first set of signatures based on the contents of the server 10a and a second set of signatures based on the contents of the cache 22 of client 20a. This method is shown in FIGS. 5A and 5B. The invalidation report provides information about the current state of the server 10a. 68 Barbara et al also on col 10, lines 39-41, disclose that at step 286, the client 20a compares its combined signature to the combined signature received in the invalidation report. Applicant on page 9, 7-8 argues that Barbara teaches away from the present claims, and does not provide any motivation for its modification to that of the present claims. Barbara et al. on col 2, lines 47-52 disclose that an improved method for maintaining a coherent view of the data in the cache of each mobile unit is desired. Desirably, the improved method would not require the mobile units to stay on-line at all times, and would not require a full cache refresh each time a mobile unit is turned on.

Regarding dependent claims, because the arguments with respect to the allowableness of independent claims were found unpersuasive, these same arguments are not persuasive with respect to the other independent claims.

Claims 1-21 have been examined.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

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351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-7, 10-12, 14-16, and 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Barbara et al. (US Patent No. 5,706,435).

1. Regarding claim 1, a distributed computing system for distributed web applications, supporting client/server affinity detection, comprising:  
a server; (a server processor, abstract)  
a client, adapted to send requests to the server; (client processor that has a cache memory, abstract) and  
a numeric-valued generation ID, accompanying each request from the client to the server, (information identifying, abstract) incremented by the server upon receiving the request, and recorded by the server before being returned to the client (each respective invalidation report includes information identifying which, if any, of the plurality of data values have been updated within a predetermined period of time before the server processor broadcasts the respective invalidation report, abstract) and  
such that if the generation ID accompanying a request from the client differs from the generation ID recorded by the server, an affinity break between the client and the server is detected. (In order to detect which of the data in cache are actually invalid, several respectively different combined signatures representing respectively different subsets of the data in the server are included in the report. Each page in the cache may be included in several different subsets of the pages in the server, and several combined signatures thus cover each page. page 10, lines 66-67 and page 11, lines 1-5) and (at step 290, a counter for each datum represented by the combined signature is incremented, col 10, lines 52-62).
2. Regarding claims, 2, 11 and 20, further comprising a plurality of clients adapted to send requests to the server, wherein each client has a unique user ID. (information identifying, page 2, line 62)

3. Regarding claims, 3 and 12, further comprising an affinity command, which combines the generation ID accompanying a request with the user ID of the client sending the request, (at step 256, a subset of the individual signatures are combined to form a combined signature by forming the Exclusive OR (XOR) of the subset of individual signatures, col 10, lines 14-16) and (Fig.5) and

-by means of which the server may detect an affinity break with a particular client among the plurality of clients. (In order to detect which of the data in cache are actually invalid, several respectively different combined signatures representing respectively different subsets of the data in the server are included in the report. Col 10, lines 52-62)

4. Regarding claims 5 and 14, further comprising a plurality of servers, wherein affinity between a client and first server may be broken as a result of the client sending a request to a second server. (corresponds to  $s$ =probability of being disconnected during an interval of length  $L$ , col 19, line 22)

5. Regarding claims 6 and 15, wherein an affinity break between a client and a server may occur if the server becomes unavailable. (corresponds to  $s$ =probability of being is connected during an interval of length  $L$ , col 19, line 22)

6. Regarding claims 7, and 16, wherein detection of an affinity break between a client and a server may be used to invalidate contents of the cache in the server. (if the client determines that one or more reports have been missed at step 214, then every entry in the cache 22 is invalidated at step 226. Steps 216 to 220 are repeated for each valid datum in the cache, if the client has not missed any reports at step 214. At step 218, for each datum in the cache 22, the invalidation report is checked to determine whether the address of that datum is in the report. If the address of the datum is in the report at step 218, then the datum is marked invalid at step 220, col 6, lines 41-56)

7. Regarding claim 10, a method for detecting affinity breaks between a client and a server equipped with a cache in a software system for distributed web applications,

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comprising: the client sending a request to the server, (a server processor, abstract) and (client processor that has a cache memory, abstract) accompanied by a numeric-valued generation ID (GID); the server receiving the request and the GID from the client, and comparing the received GID against a previously recorded GID; (Broadcasting Signatures" involves a comparison between the a first set of signatures based on the contents of the server 10a and a second set of signatures based on the contents of the cache 22 of client 20a. 68 the received GID matches the recorded GID, incrementing the recorded GID, and returning it to the client as the new GID; and if the received GID does not match the recorded GID, reporting an affinity break between the client and the server. Steps 288 and 290 are repeated for each datum in each page represented by the non-matching combined signature, col 11, lines 63-67)

8. Regarding claim 19, a computer program product in a computer readable medium for use in detecting affinity breaks between a client and a server, (a server processor, abstract) and (client processor that has a cache memory, abstract) and the computer program product comprising: instructions for the server receiving a request and a numeric-valued generation ID (GID) from the client, and comparing the received GID against a previously recorded GID; instructions for incrementing the recorded GID, and returning it to the client as the new GID, if the received GID matches the recorded GID; and instructions for reporting an affinity break between the client and the server, if the received GID does not match the recorded GID. (Broadcasting Signatures" involves a comparison between the a first set of signatures based on the contents of the server 10a and a second set of signatures based on the contents of the cache 22 of client 20a. 68 the received GID matches the recorded GID, incrementing the recorded GID, and returning it to the client as the new GID; and if the received GID does not match the recorded GID, reporting an affinity break between the client and the server. Steps 288 and 290 are repeated for each datum in each page represented by the non-matching combined signature, col 1, and lines 63-67)
9. Regarding claim 21, a server including memory and processor detecting affinity breaks, comprising; means for the server receiving a request and a numeric-valued

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generation ID (GID) from the client, (a server processor, abstract) and (client processor that has a cache memory, abstract) and comparing the received GID against a previously recorded GID; means for incrementing the recorded GID, and returning it to the client as the new GID, if the received GID matches the recorded GID; and means for reporting an affinity break between the client and the server, if the received GID does not match the recorded GID. (Broadcasting Signatures" involves a comparison between the a first set of signatures based on the contents of the server 10a and a second set of signatures based on the contents of the cache 22 of client 20a. 68 the received GID matches the recorded GID, incrementing the recorded GID, and returning it to the client as the new GID; and if the received GID does not match the recorded GID, reporting an affinity break between the client and the server. Steps 288 and 290 are repeated for each datum in each page represented by the non-matching combined signature, col 11, lines 63-67)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 8-9, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbara et al. (US Patent No. 5,706,435) and further in view of Anuff et al. (US Patent No. 6327628).

10. Regarding claim 4, wherein the server comprises a Java Virtual Machine (JVM) equipped with a cache. Barbara et al. Do not explicitly disclose a Java Virtual Machine (JVM) equipped with a cache, However, Anuff et al. disclose a method where a memory cache can be cleared by the Java Virtual Machine (JVM) when resources are running low. (col 11, lines 61-63). Therefore, it is obvious to one of ordinary skills in the art at the



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time the invention was made to incorporate Barbara's teaching of coherency in cache memory with portal server using JVM disclosed by Anuff because an improved method for maintaining a coherent view of the data in the cache of each mobile unit is desired. Desirably, the improved method would not require the mobile units to stay on line at all times, would not require a full cache refresh each time a mobile unit is turned on.

11. Regarding claims 8, and 17, wherein the affinity command is sent by the server to the client and returned by the client to the server in a cookie. The login information can be stored as a browser cookie so that users don't have to log in each time they visit a site, col 13, lines 25-31, Anuff et al.)

12. Regarding claims 9 and 13, further comprising an object-oriented software system. (An object-oriented software system consists of software objects. A software object represents an actor within an overall system design, col 4, and lines 47-48, Anuff et al.)

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mitra Kianersi whose telephone number is (571) 272-3915. The examiner can normally be reached on 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on (571) 272-3915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Mitra Kianersi

Oct/04/2004

William C. Vaughn, Jr.  
Primary Examiner  
Art Unit 2143  
William C. Vaughn, Jr.